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SUBJECT: Zambia Power Generation Update-Light at the End of the Tunnel?

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¶1. (SBU) Summary and introduction. Zambia's installed power generating capacity is 1640 megawatts (MW), and consists almost entirely of hydroelectric power. Ongoing rehabilitation projects reduce actual generating capacity to 1200 MW for the near future, which is well below estimated peak demand of about 1600 MW for 2008. As a result, increasing power outages are likely in 2008-2009. By late 2009, thanks to rehabilitation and expansion projects, actual generating capacity should increase to 1850 MW. New hydropower projects being developed by Chinese, Indian, and Canadian firms together with Zambian partners experienced past delays and currently are expected to be commissioned in 2012 and 2013. The new projects should increase generating capacity to over 3000 MW and help Zambia be a net exporter in the region--but some projects might face possible delays. End summary and introduction.

Background: Plans to Keep Up With Demand -- Not Enough, Yet

¶2. (SBU) Zambia's power generating capacity has not increased significantly in many years, but capacity-expanding efforts that started in the late 1990s should finally be paying off in upcoming years. To improve national power generating capacity, in the late 1990s, the Government of Zambia opted to take a "three-pronged" approach, Mr. Israel Phiri, Director of the Office for Promoting Private Power Investment (OPPI) which was set up in 1999 in the Ministry of Energy and Water Development, told Emboffs. The first tactic was for ZESCO to rehabilitate its major hydroelectric plants, which were not producing at full capacity due to a prolonged lack of maintenance. The World Bank and other donors helped to support these efforts, which progressed slowly and were not completed by the targeted 2007 timeframe. Rehabilitation of the 108 MW Victoria Falls hydro power station is already complete, while rehabilitation work is continuing at Kafue Gorge (900 MW installed capacity) and Kariba North Bank (600 MW installed capacity). The work involves shutting down sections of each power station--300 MW at Kafue Gorge and 150 MW at Kariba--over a 13-month period. The 450 MW shortfall means actual power production is well below installed capacity, and explains significant load shedding in the recent past. Phiri expects the rehabilitation work to be completed by the end of 2008 or in early 2009.

¶3. (U) The GRZ's second approach was to "uprate" or expand the capacity of existing power stations. Phiri said that at a cost of about USD 100 million, ZESCO is adding 90 MW of generating capacity at Kafue Gorge and 120 MW at Kariba North Bank, adding a total of 210 MW to current power generating capacity. The slow-moving expansion projects are now expected to be completed by 2009, and will bring Zambia's generating capacity to 1850 MW.

¶4. (SBU) As of late 2007, ZESCO's actual power generation output stood at approximately 1200 MW, reflecting total installed capacity

of 1640 MW, minus 450 MW that is shut down for rehabilitation. During periods when demand exceeds 1200 MW (ZESCO currently estimates that peak demand will be about 1600 MW or more -- the new Lumwana Copper Mine and Konkola Deep Copper Mine are expected to add 120 MW and 150 MW of demand in 2008, respectively) and imported power from South Africa, Zimbabwe, or the Democratic Republic of Congo is not available, more "load-shedding," as power outages and brownouts are widely referred to here, appears inevitable.

New Hydroelectric Power Projects in Development

15. (SBU) The final focus of the GRZ's three-pronged approach was to develop entirely new projects, as public-private partnerships, to tap Zambia's enormous potential for hydro-electric power, estimated at between 6000 to 8000 MW. The GRZ issued international tenders for three major hydropower projects, Kariba North Bank, Kafue Gorge and Itezhi-Tezhi, and shortlisted bidders in 2001. U.S.-based AES was active in one of the shortlisted bidder consortia, but according to Mr. Phiri, in 2002 it pulled out of many sub-Saharan African projects, including in Zambia, after encountering problems with a project in Uganda.

16. (SBU) After all three qualified bidder groups withdrew bids for the hydropower projects, the GRZ opted for other, non-competitive means to finalize the deals, in the interest of moving quickly, Phiri explained to Emboffs. Some of the projects remained with OPPPI and others became the responsibility of ZESCO. The GRZ used a 2003 visit by President Mwanawasa to China to promote the projects, and China agreed to take on the Kariba North Bank Extension project (and for a while, the GRZ was discussing the Kafue Gorge Lower project with China as well). A high-level delegation visiting from Iran in 2003 also indicated an interest and capability in hydro-electric, which resulted in a deal for the development of Itezhi-Tezhi. However, in following years, Iran pressured the GRZ

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to side with it on sensitive issues in the UN. According to both Phiri and Aaron Nyirenda, Director for Power Generation Projects at ZESCO, the GRZ decided to pull out of the deal--when the project was at the pre-design stage and discussions on financing were already underway--so the Iranians would not use the project for political leverage. ZESCO worked with the World Bank to hold a power sector investor workshop in May 2006, and numerous companies expressed an interest. However, only India's Tata actively followed up, which resulted in a deal. According to Nyirenda, ZESCO and Tata have set up a 50-50 percent joint venture company to oversee the project, with the GRZ receiving one "golden share." The Itezhi-Tezhi hydropower project is valued at USD 150 million and is expected to produce 120 MW by 2012.

17. (SBU) Following extensive feasibility studies and negotiations, in November 2007, ZESCO and China's Sinohydro signed a USD 243 million contract for the engineering, procurement and construction of the Kariba North Bank Extension hydropower project of 360 MW, and in December, ZESCO finalized a concessional loan agreement with the Chinese Export-Import Bank, according to Nyirenda. The project is supposed to begin in 2008 and be commissioned by 2012.

18. (SBU) The GRZ had been in discussions with Sinohydro over development of the Kafue Gorge Lower project, Phiri told Emboffs, but after both sides failed to reach agreement, OPPPI started to work to re-tender the project with advice from the International Finance Corporation, which will help cover the costs of feasibility studies for an alternate project site, "Site Five," about six kilometers from the original site proposed. The original project size, 600 MW of power generating capacity, could increase to as much as 750 MW at the new site, Phiri said. He expects the next phase of feasibility studies to be carried out starting in March 2008. OPPPI will be ready to solicit bids by the end of 2008. OPPPI plans to award the project in 2009, with commissioning by 2013.

19. (SBU) Phiri told Emboffs that the planned Kalungwishi hydropower project in Luapula Province involves two stations totaling 218 MW of power generating capacity as well as installation of 500 kilometers of transmission line to link to the national grid, in Kasama and Serenje. OPPPI is still negotiating with the selected bidder,

Lunzuwa Power Authority, which is a subsidiary of local firm Olympic Milling and aligned with a Canadian firm with solid hydroelectric experience, Knight-Piesold. Assuming that final details can be agreed upon, the bidder will need to arrange financing for the project during 2008. Phiri expects construction to begin in 2009 and commissioning to take place in 2013.

Looking Beyond Hydropower Resources -- Not Much To See

¶10. (U) In order to diversify its sources of electric power, Phiri told Emboffs that OPPPI was exploring options for developing about 500 MW of thermal power generating capacity, to come on line by 2013, but had not reached any decisions yet. Nyirenda noted that both diesel and coal powered turbines would be comparatively expensive to operate in Zambia, given the high cost of the feedstock. (Note: In fact, ZESCO's Director of Engineering Development Alvin Monga also told the media in late December 2007 that ZESCO would phase out the use of several small diesel generators that supply electricity in five districts, because of the high cost of fuel and operating losses from running the generators. End note.) Neither our OPPPI nor ZESCO sources could foresee Zambia's turning to nuclear energy as an option for diversifying electricity supply.

¶11. (SBU) Comment: If completed on schedule, by 2013, the four new hydropower projects would add 1510 MW of power to the national grid, bringing Zambia's generating capacity to 3360 MW and enabling it to become a regional electricity exporter. After years of delays, the Itezhi-Tezhi and Kariba North Bank Extension projects both appear to be on track and moving forward at a steady pace. However, there might be challenges ahead for OPPPI as it proceeds with the massive Kafue Gorge Lower project. It appears that senior levels of the Zambian government might have other ideas for the project -- the Executive Chairman of Copperbelt Energy Corporation told Emboffs in late December that CEC had teamed up with copper mining company Mopani, owned by Glencore, to propose developing the Kafue Gorge Lower project to senior GRZ officials, who were very receptive to the concept. The GRZ might welcome the opportunity for a Zambian-controlled company to take on such a high-profile project, although side-stepping a competitive tender process could result in less attractive terms for the deal.

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